

PATENT CLAIMS

1. A suction cooling roller for a strip-shaped web, in particular for a paper or cardboard web or plastic or metal foil, whose jacket is formed with holes (22) and where suction is applied at least to a contact region with the web and that has means for cooling the surface of the jacket (9), characterized in that the surface of the jacket (9) is cooled by axially extending passages (21), e.g. bores, formed in the jacket (9) and traversed by a coolant.

2. The suction cooling roller according to claim 1, characterized in that the jacket (9) is made of a material, preferably aluminum, having a thermal conductivity of more than 100 W/(m K).

3. The suction cooling roller according to claim 1 and 2, characterized in that the coolant flows oppositely in adjacent coolant passages (21) of the jacket (9).

4. The suction cooling roller according to one of claims 1 to 3, characterized in that the coolant is fed via an end flange (8) into and out of one end of the jacket (9).

5. The suction cooling roller according to claim 4, characterized in that adjacent cooling passages (21) are connected

via bridge passages (23) at an opposite end to the intake side in an end flange (10).

5 6. The suction cooling roller according to claim 4, characterized in that the cooling passages (21) are connected via an annular passage (23) at an opposite end to the intake side in an end flange (10).

7. The suction cooling roller according to one of claims 1 to 3, characterized in that the coolant is fed to and from both ends of the roller jacket (9) via end flanges (8 and 10).

10 8. The suction cooling roller according to one of claims 1 to 7, characterized in that a spacing between the cooling passages (21) is 10 mm to 100 mm a diameter of the cooling passages is the same and varies between 8 mm and 30 mm.

15 9. The suction cooling roller according to one of claims 1 to 8, characterized in that a working width (3) of the suction cooling roller (1) is between 600 mm and 3000 mm and a roller diameter is between 200 mm and 1200 mm, preferably between 400 mm and 800 mm.

20 10. The suction cooling roller according to one of claims 1 to 10, characterized in that the number of air-flow holes (22) on the roller jacket (9) is between 1 hole per 100 cm² and 100

holes per 100 cm², the holes (22) being formed by drilling, laser, or water-jet cutting and being round and/or slot-shaped.

11. The suction cooling roller according to one of claims 1 to 10, characterized in that air-flow holes (22) on an outer surface of the roller jacket (9) open into shallow grooves.

12. The suction cooling roller according to one of claims 1 to 11, characterized in that the roller jacket (2) is rotatably mounted at one end on a stationary inner part of the roller (1) and at an opposite end in a bearing (7),

the inner part being a tube (12) extending coaxially of the roller axis, rotatably mounted in the bearing part (7), and carrying partitions (13, 14, 15 and 16) that form a chamber that communicates via at least one opening (24) in the tube with a suction source, and

the bearing (7) is provided for feeding the coolant in and out with two concentric passages (71 and 18) that are connected via passages (19 and 20) with the cooling passages (21).

13. The suction cooling roller according to one of claims 1 to 12, characterized in that the roller jacket (9) is connected at one end via an end flange (8) with the bearing (7) that connects the cooling passages (21) with the concentric feed passages (17 and 18) and at the other end via an end flange (10) to

the inner part, one of the flanges (8 or 10) carrying a belt pulley (11) for driving the roller jacket (9).

5 14. The suction cooling roller according to one of claims 1 to 13, characterized in that some of the partitions (13, 14, 15 and 16) on the inner part extend axially and radially and others are axially spaced and extend radially, the partitions (13, 14, 15 and 16) defining a region of the roller jacket that corresponds to a contact region with the workpiece web.

10 15. The suction cooling roller according to one of claims 1 to 14, characterized in that the radially extending and axially spaced partitions (15 and 16) are movable.